

Claims:

1. A field effect device (100), comprising:
at least one segmented field plate (111, 109), each of the at least one segmented field plates having a plurality of segments (115, 114) that each form a plate of a capacitor, wherein the field effect device (100) is connected to an electronic device (300) that dynamically connects selected segments to selectively set a gate-to-drain (C_{GD}), and a drain-to-source (C_{DS}) capacitance.
2. A field effect device (100) as recited in claim 1, wherein the at least one segmented field plate further comprises a first segmented field plate (111) and a second segmented field plate (109).
3. A field effect device as recited in claim 1, wherein the field effect device (100) is a metal-oxide-semiconductor field effect transistor (MOSFET).
4. A field effect device (100) as recited in claim 2, wherein the second field plate (109) is at least partially disposed over the first field plate (111).
5. A field effect device (100) as recited in claim 4, wherein a dielectric layer (113) is disposed between the first (109) and the second segmented field plates (111) at a location where the second field plate partially overlaps the first field plate.
6. A field effect device (100) as recited in claim 3, wherein the field effect device is a semiconductor-on-insulator structure.
7. A field effect device (100) as recited in claim 1, wherein the field effect device is a semiconductor transistor, and the semiconductor is one of silicon, silicon-germanium or a III-V semiconductor material.

8. A field effect device (100) as recited in claim 1, wherein a ratio of C_{GD} to C_{DS} is selectively and dynamically controlled by the electronic device (300).
9. A field effect device (100) as recited in claim 8, wherein the ratio is in the range of approximately 0.3 to approximately less than 0.9.
10. A field effect device (100) as recited in claim 1, wherein the field effect device is a component of an electrical switch.
11. An ultrasonic device (400), comprising:
a transducer (403) coupled to a switching device (401) that switches the transducer (403) between a transmit mode and a receive mode, wherein the switching device includes a field effect device (100) that includes at least one segmented field plate (109, 111), each of the at least one segmented field plates having a plurality of segments (115, 114) that each form a plate of a capacitor; and wherein the field effect device is connected to an electronic device (300) that dynamically connects selected segments to selectively set a gate-to-drain (C_{GD}) and a drain-to-source capacitance (C_{DS}).
12. An ultrasonic device (400) as recited in claim 11, wherein the transducer (403) optimally operates at a particular ratio of C_{GD} to C_{DS} , and the electronic device (300) connects the selected segments to realize the particular ratio.
13. An ultrasonic device (400) as recited in claim 11, wherein the ultrasonic device is adapted to connect to any of a plurality of transducers, each of which optimally operates at one of a particular ratio C_{GD} to C_{DS} , and the electronic device connects said selected segments to realize the particular ratio for one of said plurality of transducers when in use with the ultrasonic device.
14. An ultrasonic device (400) as recited in claim 11, wherein the at least one segmented field plate (109, 111) further comprises a first segmented field plate and a second segmented field plate.

15. An ultrasonic device (400) as recited in claim 11, wherein the field effect device (100) is a metal-oxide-semiconductor field effect transistor (MOSFET).
16. An ultrasonic device (400) as recited in claim 13, wherein the second segmented field plate (109) is at least partially disposed over the first field plate.
17. An ultrasonic device (400) as recited in claim 15, wherein a dielectric layer (113) is disposed between the first and the second segmented field plates (109, 111) at a location where the second field plate partially overlaps the first field plate.
18. An ultrasonic device (400) as recited in claim 14, wherein the field effect device (100) is a semiconductor-on-insulator structure.
19. An ultrasonic device (400) as recited in claim 11, wherein the field effect device (100) is a semiconductor transistor, and the semiconductor is one of silicon, silicon-germanium or a III-V semiconductor material.
20. An ultrasonic device (400) as recited in claim 11, wherein the electronic device (300) includes a multiplexer (304), which receives an input from the transducer, and based on the input effects the dynamic selection.
21. An ultrasonic device (400) as recited in claim 11, wherein C_{GD} is less than C_{DS} .